

EXHIBIT 1

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Paper 9
Date: January 22, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO. LTD.,
Petitioner,

v.

HEADWATER RESEARCH LLC,
Patent Owner.

IPR2023-01157
Patent 11,405,224 B2

Before ROBERT J. WEINSCHENK, GARTH D. BAER, and
STEPHEN E. BELISLE, *Administrative Patent Judges*.

BAER, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

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I. INTRODUCTION

A. Background

Samsung Electronics Co., Ltd. (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 1–17 (the “challenged claims”) of U.S. Patent No. 11,405,224 B2 (Ex. 1001, “the ’224 patent”). Paper 2, 1 (“Pet.”). Headwater Research LLC (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). With our authorization, Petitioner filed a Reply to Patent Owner’s Preliminary Response (Paper 7, “Pet. Reply”) and Patent Owner filed a Sur-Reply (Paper 8, “PO Sur-Reply”).

Under 35 U.S.C. § 314, an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Upon consideration of the Petition in view of the present record and for the reasons explained below, we determine that Petitioner has shown a reasonable likelihood of prevailing with respect to at least one of the challenged claims. Accordingly, we institute an *inter partes* review on all grounds set forth in the Petition. *See* 37 C.F.R. § 42.108(a).

B. Related Proceedings

The parties identify the following related matter: *Headwater Research LLC v. Samsung Electronics Co., Ltd.*, 2:22-cv-00422 (E.D. Tex.). Pet. 85; Paper 5, 1–2.

C. The ’224 Patent (Ex. 1001)

The ’224 patent is directed to services for protecting network capacity. Ex. 1001, code (54). Figure 19 is reproduced below.

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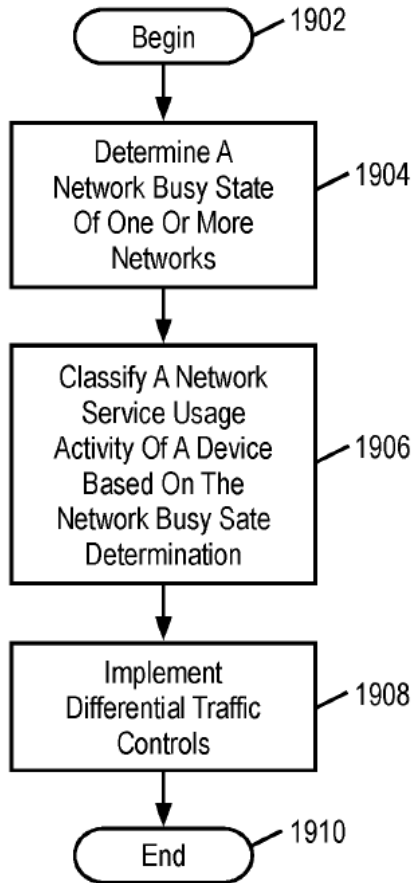


FIG. 19

Figure 19 illustrates a “flow diagram for device assisted services (DAS) for protecting network capacity.” *Id.* at 2:34–35. The ’224 patent describes “monitoring a network service usage activity,” “classifying the network service usage activity,” and “associating the network service usage activity with a network service usage control policy . . . to facilitate differential network access control.” *Id.* at code (57). According to the ’224 patent, priority levels can be “based on one or more criteria/measures . . . such as network busy state, current access network, time based criteria, an associated service plan, and/or other criteria/measures.” *Id.* at 77:37–41.

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D. Illustrative Claim

Claim 1 is the sole challenged independent claim. Claim 1 is reproduced below, with numbering added.

[1pre] A wireless end-user communications device, comprising:

[1.1] at least one wireless modem;

[1.2] a processor configured to:

[1.3] for each given application of a plurality of applications on the wireless end-user device, monitor a network service usage activity of the wireless end-user communications device associated with the given application;

[1.4] classify, as a first classification for each given one of the network service usage activities, a classification based on the application associated with the given network service usage activity and that allows for a differential network access control, wherein the differential network access control comprises a set of service usage control policies applicable when a network service is available via the at least one wireless modem, including at least a first policy that allows the given network service usage activity to currently communicate data with a network destination via the at least one wireless modem, and a second policy that defers data communication associated with the given network service usage activity until a device state change occurs;

[1.5] associate each given one of the network service usage activities with a service usage control policy dynamically selected from the set of service usage control policies, based on the first classification of the given network service usage activity and at least one device state; and

[1.6] manage network data access via the at least one wireless modem for each of the plurality of applications according to the dynamically selected service usage control policy for each given network service activity of that application; and

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[1.7] a memory coupled to the processor and configured to provide the processor with instructions.

Ex. 1001, 107:33–108:2.

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability. Pet. 1.

Claim(s) Challenged	35 U.S.C. §	References/Basis
1–11, 16, 17	103(a) ¹	Cole ² , D’Amore ³ , Rao ⁴
13–15	103(a)	Cole, D’Amore, Rao, Freund ⁵
12	103(a)	Cole, D’Amore, Rao, Aleksic ⁶

Petitioner submits a declaration from Patrick Traynor. Ex. 1003.

II. DISCUSSION

A. Discretion under 35 U.S.C. § 325(d)

Patent Owner contends we should deny institution under 35 U.S.C. § 325(d) because the same or substantially the same prior art or arguments previously were presented to the Office. Prelim. Resp. 26–43. Specifically, Patent Owner explains that close relatives of two of the asserted references for claim 1, Cole and Rao, were cited in the patent’s prosecution history, and the other reference, D’Amore, is cumulative of Lim, a reference the examiner considered during prosecution. *See* Prelim. Resp. 26–39. For the

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), included revisions to 35 U.S.C. § 103 that became effective after the filing of the application that led to the challenged patent. Therefore, we apply the pre-AIA version of 35 U.S.C. § 103.

² US 2008/0080458 A1, Pub. Apr. 3, 2008 (Ex. 1005, “Cole”).

³ US 2009/0119773 A1, Pub. May 7, 2009 (Ex. 1006, “D’Amore”).

⁴ US 2006/0039354 A1, Pub. Feb. 23, 2006 (Ex. 1007, “Rao”).

⁵ US Patent No. 5,987,611, Nov. 16, 1999 (Ex. 1008, “Freund”).

⁶ US 2008/0057894 A1, Pub. Mar. 6, 2008 (Ex. 1011, “Aleksic”).

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reasons given below, we are not persuaded to exercise our discretion to deny the Petition based on § 325(d).

In evaluating arguments under § 325(d), we use a two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of the first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential).

In the examiner's notice of allowance, the examiner explained that the claims were allowable because the prior art of record, including Lim, did not teach claim element [1.5], which requires "associate[ing] each given one of the network service usage activities with a service usage control policy . . . based on the [application] classification of the given network service usage activity." Ex. 1002, 31. Here, Petitioner relies on D'Amore, a reference that was not before the examiner, for teaching selecting a policy based on application. Pet. 45; *see* Prelim. Resp. 34–35. Patent Owner argues that D'Amore's "policy management module" disclosure is cumulative of Lim's "policy engine" disclosure that was before the examiner. Prelim. Resp. 35.

We agree with Petitioner that D'Amore is not cumulative to Lim. Pet. Reply 3–5. Specifically, D'Amore's policy management module "approves or denies access to a system resource for the mobile application based at least on the priority level or the privilege code." Ex. 1006 ¶ 8 (emphasis added). In contrast to D'Amore's application-based rules, Lim teaches that

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its policy engine “applies the policy rules . . . to the data to produce a consequence.” Ex. 2005 ¶ 262 (emphasis added). Because limitation 1.5 requires application-based rules, Lim’s generic disclosure of applying rules to data is not cumulative of D’Amore’s more specific disclosure of applying rules to applications. Thus, Patent Owner has not shown that part one of the *Advanced Bionics* framework is met.

In addition, Petitioner has sufficiently shown under part two of the *Advanced Bionics* framework that the Office materially erred when it allowed the challenged claims. As *Advanced Bionics* explains, the record developed by the office informs what the petitioner must show to demonstrate the office materially erred. *Advanced Bionics*, Paper 6 at 10. With respect to Cole, Rao, and D’Amore, the record developed by the office is sparse because Cole and Rao were two of about 1,800 references identified in information disclosure sheets, but never discussed substantively during prosecution, and D’Amore was not before the office. Ex. 1002, 314–317, 329–383, 395–533. In light of that sparse record, Petitioner’s showing on the merits is enough to demonstrate that the examiner erred. Specifically, to the extent the examiner substantively considered Rao, Cole, and a reference cumulative of D’Amore as a combination and concluded that the combination does not teach claim element [1.5], the examiner materially erred. See Ex. 1002, 31. Instead, as the Petition explains, the asserted combination teaches element [1.5] because Rao’s “packet capture mechanism and frame monitor would classify network service usage activities, based on their application, and ‘associate each given one of the network service usage activities with a service usage control policy’ defined in the policy management module” as D’Amore teaches. Pet. 45. “The

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CDR connection manager would then effectuate differential network access control according to the selected service usage control policy,” as Cole teaches. *Id.* In light of this analysis, Petitioner has sufficiently shown under part two of the *Advanced Bionics* framework that the Office materially erred when it found the prior art does not teach claim element [1.5].

For these reasons, we decline to exercise our discretion to deny the Petition based on § 325(d).

B. Claim Construction

In an *inter partes* review proceeding, we construe patent claims using the same standard used in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of the claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b). Neither party proposes an express construction for any claim terms. Pet. 2; Prelim. Resp. 8. We agree that no claim terms require express construction for purposes of this Decision.

C. Level of Ordinary Skill in the Art and Petitioner’s Expert

Petitioner contends a person of ordinary skill in the art at the time of the invention “would have had (1) at least a bachelor’s degree in computer science, electrical engineering, or a related field, and (2) three to five years of experience with networking, power consumption of networked computing devices, and/or wireless digital communications systems,” and that “[a]dditional graduate education could substitute for professional experience, and *vice versa*.” Pet. 3 (citing Ex. 1003 ¶¶ 22–23). Patent Owner does not challenge Petitioner’s definition at this stage of the

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proceeding. Prelim. Resp. 8. On this record, we agree with Petitioner's definition.

D. Description of Primary Prior Art References

1. Cole (Ex. 1005)

Cole is directed to a communication manager. Ex. 1005, code (54).

Cole's Figure 2 is reproduced below.

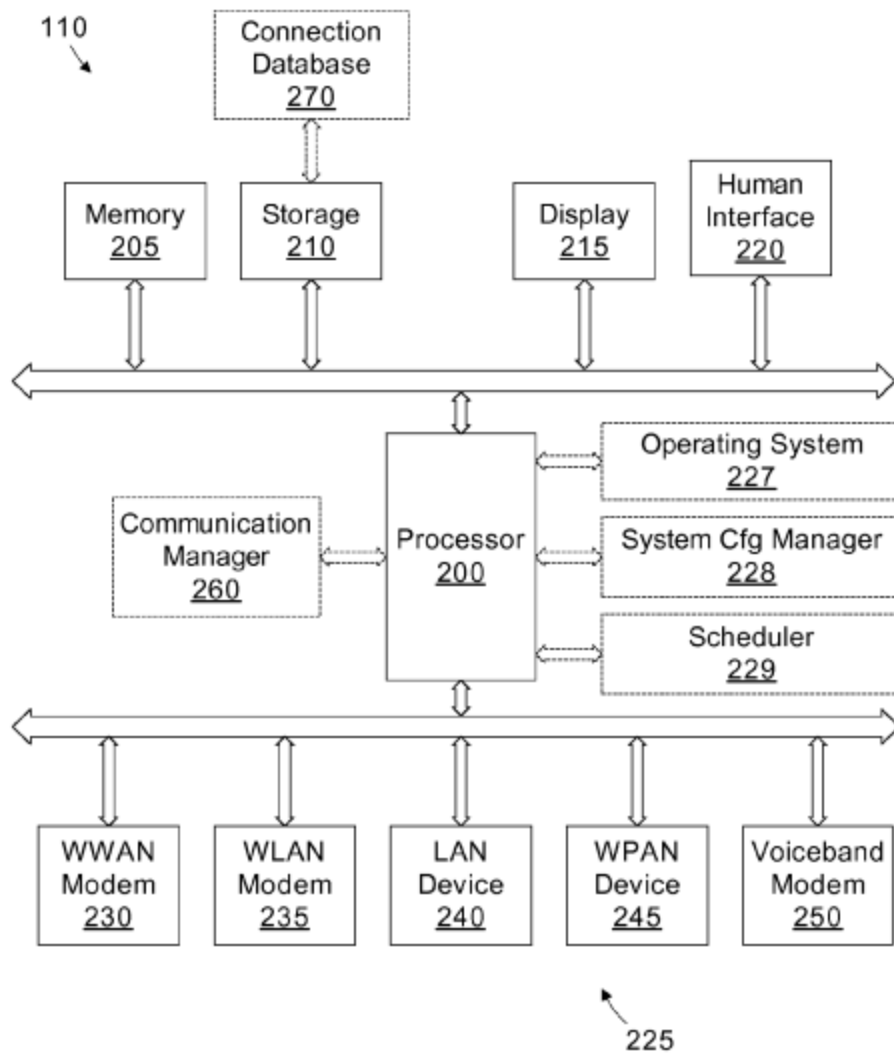


Figure 2

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Figure 2 is a block diagram of a mobile device in a communication system.

Id. ¶¶ 16, 17. Cole’s connection manager “manages the various communication interfaces” between mobile devices and remote networks “to determine which connections should be active at any given time.”

Id. ¶ 36, *see id.* ¶ 15. Cole teaches that the connection manager can “schedule various events to effectively use available bandwidth without negatively impacting performance.” *Id.* ¶ 74.

2. D’Amore (Ex. 1006)

D’Amore describes “management and arbitration of dedicated mobile communication resources for mobile applications.” Ex. 1006, code (57).

D’Amore’s Figure 2 is reproduced below.

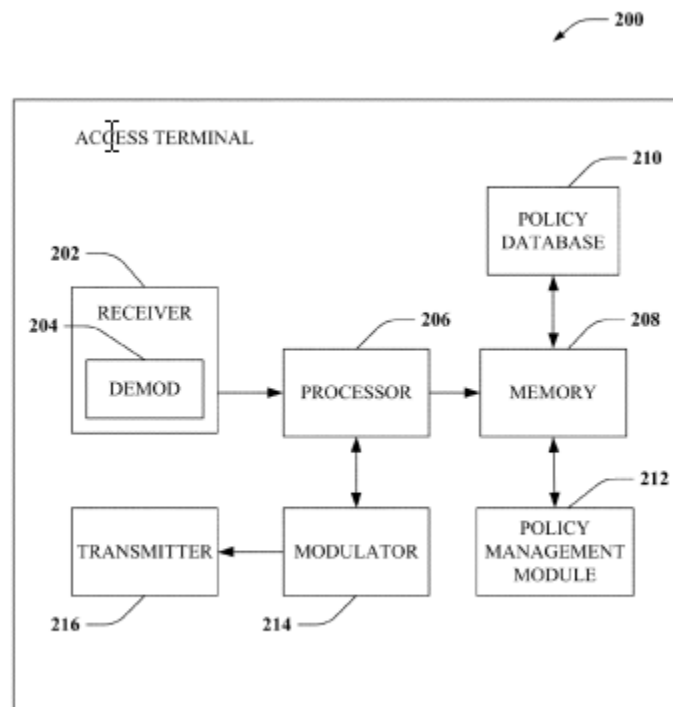


Figure 2 is “a block diagram of a sample access terminal.” *Id.* ¶ 19.

D’Amore’s policy management module can “approve or deny access to a mobile device resource and/or mobile network resource for a mobile

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application” “based at least in part on a priority level or a privilege code associated with the mobile application.” *Id.* ¶ 51.

3. *Rao (Ex. 1007)*

Rao teaches a method of prioritizing network communication. Ex. 1007, code (54). Rao describes intercepting/inspecting network packets, and identifying which application generated each packet. *Id.* ¶¶ 109, 158. Rao teaches employing “policies . . . for specifying client-side prioritization of network communications related to applications.” *Id.* ¶ 182.

E. Obviousness Analysis

Petitioner contends that claims 1–11, 16, and 17 would have been obvious over Cole, D’Amore, and Rao. Pet. 25–68. Petitioner adds Freund or Aleksic to address additional limitations in dependent claims 12–15. *Id.* at 68–81. Based on the present record and for the reasons explained below, we determine that Petitioner has demonstrated a reasonable likelihood of success in proving that claims 1–17 would have been obvious over the asserted prior art.

1. *Petitioner’s Proposed Combination of Cole, D’Amore, and Rao*

Petitioner asserts that it would have been obvious to combine D’Amore’s service usage control policies with Cole’s connection manager “to further improve the management of applications in devices such as Cole’s mobile device.” Pet. 11. Petitioner offers several reasons why a skilled artisan would have been motivated to do so, including “the increased ability to manage application priority and mobile device resources,” and “enabl[ing] greater provider control of mobile device resources.” *Id.* at 11–12.

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Petitioner further asserts that it would have been obvious to modify the Cole-D’Amore system by adding Rao’s packet capture mechanism that identifies an application associated with each packet. *Id.* at 20. Petitioner asserts a skilled artisan would have had multiple reasons to do so. *Id.* at 21. First, Petitioner explains, Rao’s technique was a known way “to identify application traffic at the packet level, allowing for inter-application classification of activities based on protocol.” *Id.* In addition, Rao’s application-based identification and prioritization “would enhance the priority policies of the Cole-D’Amore device, allowing the connection manager to consider the impact (e.g., deferring an active browsing session or a call in progress) to the mobile device user.” *Id.*; *see id.* at 24 (explaining that “Rao’s prioritization techniques would . . . allow the connection manager to make more effective prioritization decisions by monitoring additional application characteristics”).

2. Patent Owner’s Challenge to Petitioner’s Rationale for Combining Rao

Patent Owner asserts that Petitioner’s obviousness challenge fails because a skilled artisan would not have combined Rao’s packet capture mechanism with the Cole-D’Amore system. Prelim. Resp. 17. Specifically, Patent Owner asserts, Rao is incompatible in the asserted combination because Rao teaches influencing network traffic on a packet level of granularity, rather than on an application level, as the claims require. *Id.* at 18.

We disagree with Patent Owner’s argument. While Rao’s packet-level control is different from the claims’ and D’Amore’s application-level control, that difference does not undermine or counsel against application-level control. *See DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*,

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567 F.3d 1314, 1327 (Fed. Cir. 2009) (“A reference does not teach away . . . if it merely expresses a general preference for an alternative invention but does not criticize, discredit, or otherwise discourage investigation into the invention claimed.”) (internal quotation marks omitted). To the contrary, as Petitioner explains, both the packet-level and application-level control methods further the same design objective of proactively preventing overloaded connections that impact performance. *See* Pet. 22. Moreover, nothing in Rao’s packet-level control undermines Petitioner’s explanation that one skilled in the art would implement a different feature of Rao—Rao’s application association—as a known way “to identify application traffic at the packet level, allowing for inter-application classification of activities based on protocol.” *Id.* at 21. In light of Petitioner’s rationale, as outlined above, Petitioner has articulated sufficient reasoning with rational underpinning to support its assertion that it would have been obvious to combine Rao’s packet capture mechanism, which identifies an application associated with each packet, with the Cole-D’Amore system that does application-level control. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418, 419 (2007).

3. *Summary*

Other than as outlined above, Patent Owner does not additionally challenge Petitioner’s obviousness contentions. We have reviewed Petitioner’s arguments and the underlying evidence cited in support and are persuaded that, at this stage, Petitioner sufficiently demonstrates a reasonable likelihood of succeeding in its challenges to claims 1–17.

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III. CONCLUSION

After considering the evidence and arguments presented in the current record, we determine that Petitioner has demonstrated a reasonable likelihood of success in proving that at least one of the challenged claims of the '224 patent is unpatentable. We therefore institute trial on all challenged claims and grounds raised in the Petition. At this stage of the proceeding, we have not made a final determination as to the patentability of any challenged claim or as to the construction of any claim term. Any final determination will be based on the record developed during trial.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–17 of the '224 patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '224 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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